

# CALIFORNIA TRANSPORTATION Journal

Winter 2005 | Volume 1 | Issue 1

REPAIRING SCENIC HIGHWAY 1,  
CALTRANS FOUND MORE  
THAN THE VIEW







# California Has the Power to Reverse Years of Neglect to the State's Mobility System

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ELCOME TO THE new *California Transportation Journal* produced by the California Department of Transportation (Caltrans). The purpose of this quarterly publication is to keep you up to speed with the activities of Caltrans, its partners and the transportation industry as a whole.

Within the pages of this magazine you will learn that Caltrans is undergoing a transformation from a transportation bureaucracy to a mobility company. The *Journal* will showcase new projects, cutting-edge technologies, and a fresh approach for reclaiming the state's golden age of transportation.

For example, this issue looks at the innovative work of "context sensitive solutions" that make transportation a willing servant to livable communities. It examines Caltrans' role in ensuring that archaeology made necessary by transportation projects preserves the state's prehistory and environment. It looks at new technologies to ensure that state bridges and highways are safe after major earthquakes, and it explores how Caltrans can keep traffic moving during pavement rehabilitation projects.

Thirty-five years ago, the Golden State led the nation in expanding a progressive transportation system. We created a shining example of infrastructure that drove and supported one of the most dynamic economies in the world.



In recent years, however, investment in transportation has not kept pace with population increases and economic growth. State gasoline tax revenues and the number of miles in the State Highway System have remained static. Yet Californians travel nearly twice as many miles as they did in 1971, and the population has increased by more than 75 percent.

With resources unchanged, most areas of the state will experience a significant increase in highway congestion over the next two decades. The number of hours of delay on the state's highways is expected to rise by 106 percent in San Diego, 77 percent in the Bay Area and 43 percent in Southern California. Unless the situation changes by 2008, experts predict that California will have an estimated \$64 billion in unfunded transportation needs.

New strategies are needed to build a world-class, multi-modal transportation system that moves people, goods, information and services in a safe, sustainable







## Message From The Caltrans Director



and environmentally sound manner. To accomplish this, we will make California more accountable for accelerating current and future investments in mobility.

We will support projects that provide the greatest positive economic impact and deploy market-based strategies, such as high occupancy toll (HOT) lanes, to leverage public investment. Along these lines, we will look to expand design sequencing within Caltrans, and attempt to secure expanded authority for design-build engineering.

Another key strategy is building public-private partnerships. Both the state and its local and regional partners are facing real budget constraints at the same time that rising demand is putting increased pressure on our transportation system. Public-private partnerships are an important option for funding future transportation projects. They can be an effective way to harness the skills and resources of the private sector, while maintaining the appropriate level of public control. In fact, the U.S. Department of Transportation strongly supports the use of public-private partnerships.

Caltrans Director Will Kempton and I strongly believe that the state should get a higher return on investment through "anti-dumb growth" strategies. We intend to foster efficient land use through high-density and "infill" development. We will also integrate information technology systems to facilitate better traffic movement.

California has the power to reverse the years of neglect to the state's mobility system. We will turn things around and create a new golden age of transportation in California. The new *California Transportation Journal* will keep you informed every mile of the way.

Sincerely,

Secretary

Business, Transportation & Housing Agency

This is the first issue of the *California Transportation Journal*, the Department's voice to the transportation community. Through the *Journal*, Caltrans will tell its story to partners across the state, from local public works departments to urban Metropolitan Planning Organizations, and hundreds of other stakeholders.

Over the next few years, we want our counterparts across the state to understand that Caltrans is committed to a new way of doing business. We want to establish and expand partnerships, make project delivery a clear priority, and find ways to say "yes" to the needs of our customers.

The *Journal* will provide Caltrans with an opportunity to tell its story, and it's a great story. We are moving ahead in new ways, and delivering improvements that will provide more mobility for the goods, people and services that use our transportation system.

Good reading. I hope you will enjoy it!

Director, Caltrans

ARNOLD SCHWARZENEGGER  
Governor

SUNNE WRIGHT McPEAK  
Secretary  
Business, Transportation  
and Housing Agency

WILL KEMPTON  
Director  
California Department  
of Transportation  
(Caltrans)

MARK DESIO  
Deputy Director  
Caltrans External Affairs

JOHN ROBIN WITT  
Editor  
Caltrans External Affairs

PHOTOGRAPHY  
Images by Caltrans  
Headquarters Photography

GRAPHIC DESIGN  
Karen Brewster  
Caltrans External Affairs

COVER PHOTO  
Brian A. Ramos, Ph.D.  
Caltrans Archaeologist

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SACRAMENTO, CA 95814

(916) 654-5782  
(916) 654-4108

COVER STORY: Caltrans  
archaeologist Brian A. Ramos  
and his team excavate a site  
along Highway 1 prior to repair  
work on the damaged roadway.

# CALIFORNIA TRANSPORTATION Journal

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## REPAIRING NATURE'S RAVAGES ON HIGHWAY 1

# Caltrans Shines a Spotlight on California Prehistory

*By John Robin Witt*

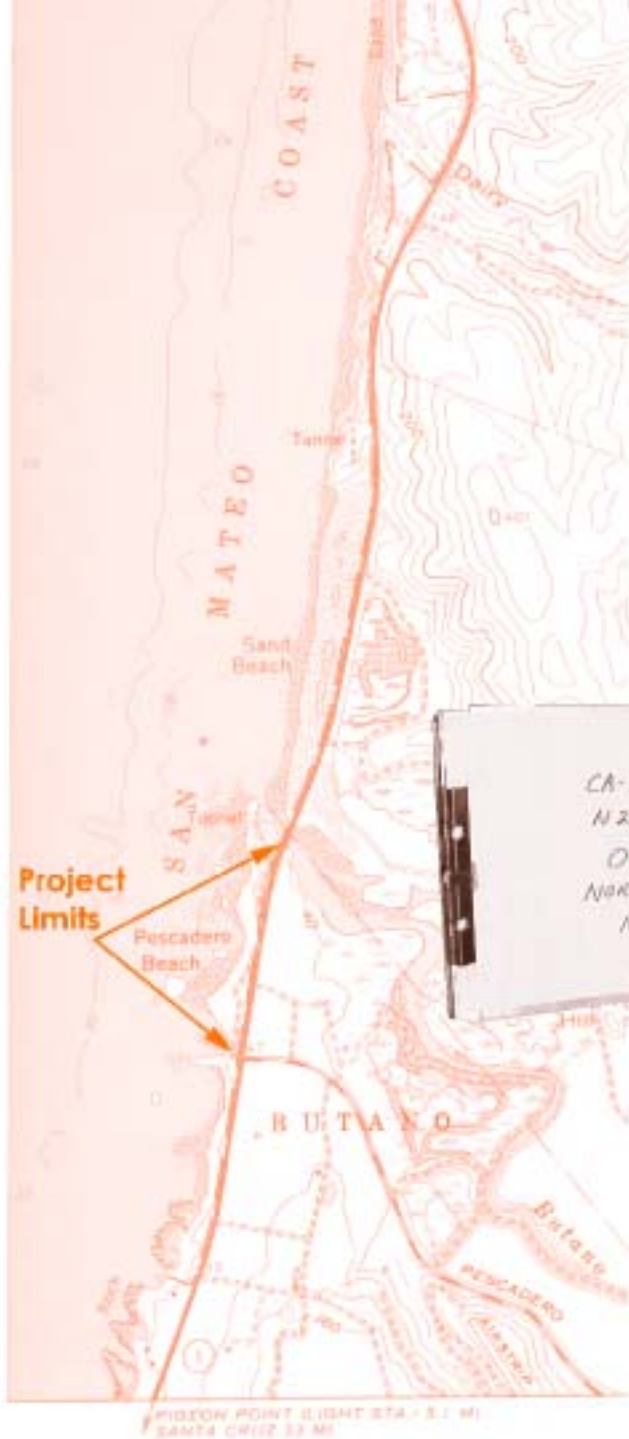
*Editor, California Transportation Journal*

As many as 3,000 years ago, Native Americans made their way to a site in what would become San Mateo County, along the future State Highway 1, which carves its way between the blue ocean and the dun rocks of coastal California near Pescadero Creek.

It is among the most beautiful spots in the state. Splashed by silver sea spray and sunlight, it has long served as a magnet to visitors from around the world. However, these ancient people were looking for more than the view when they trekked to the sea from inland California.

Their history is not completely clear. But, in a way, they seem to have been early commuters, traveling from inland California to a kind of stone tool

*(see page 2)*



**Project Limits**

workshop and then returning with the rhythmic regularity of the seasons. At certain points, they may have stopped coming, only to be replaced by others who knew of, or perhaps rediscovered, the utilitarian value of the place.

The stones they worked came from a variety of origins. Their obsidian flakes can be traced to the North Coast Mountains in the vicinity of Borax Lake and Napa Valley. Others had been carried, or more likely traded, from a source in the Warner Mountains in extreme northeast California, some 325 miles from Pescadero Creek. A third provenience appears to be the Mono Basin on the eastern side of the Sierra Nevada.

We don't know their names, although Spanish explorers referred to 18th century Indians in the area as "Costanoans," a general term for "coast dwellers." Modern people use the name Ohlone for the Native Americans who trace their ancestral roots to the area.

### How Did Caltrans Become Involved?

It is a given that most people like archaeology. They are fascinated by the reemergence of small things that have been long forgotten, of shadowy people with unknown names and unfamiliar customs. However, why should the California Department of Transportation, better known for highways, mass transit and passenger rail, become involved in unearthing such evidence from the past?

The story began in January 2002, when swells from a powerful Pacific Ocean storm eroded some two-fifths of a mile of Highway 1, obliging Caltrans to realign the road quickly. However, before the Department could begin work, it had to mitigate the effects of the realignment. In this case, the investigation meant an archaeological dig.

Richard Fitzgerald and Dr. Brian A. Ramos, both Caltrans archaeologists, were named co-directors of the field investigation, on a site designated SMA-367 (San Mateo, site No. 367).

Fitzgerald, with 23 years of archaeological experience with Caltrans, has a master's degree in Anthropology and is a veteran of archaeological fieldwork in California as well as Europe, Mexico and South America.

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*Californians and visitors from around the world enjoy the surf and sand along Highway 1. Few realize the asphalt roadway in many cases hides the forgotten prehistory of the Golden State. When highways are damaged and need to be rebuilt, Caltrans is charged with exploring properties that can contribute to unearthing America's past. GRAPHIC BY DISTRICT 4*



Ramos holds a doctorate in Anthropology from the University of California, Davis, has a dozen years of experience in California prehistoric archaeology and has worked as an archaeologist with the State Historic Preservation Office in Hawaii.

Other team members included Lissa Mckee, District Branch Chief for Archaeology in District 4; archaeologists Mark Giambastiani, Thomas Garlinghouse and Monique Pomerleau, all of Albion Environmental Consulting; and Barbra Siskin of Jones and Stokes Environmental Consulting.

Their most important task was to undertake an archaeological investigation of the Pescadero Creek realignment project to satisfy a portion of the National Historic Preservation Act.

The Act authorizes the U.S. Secretary of the Interior to maintain a National Register of Historic Places (NRHP) that lists sites, bridges, buildings and structures significant in American history, architecture, archaeology, engineering and culture. A property can be listed if it meets at least one criterion outlined in the Act.

- ◆ The property may be associated with events that have made a significant contribution to the broad patterns of American history.

- ◆ The site may be associated with the lives of significant persons in our past.
- ◆ It may have distinctive characteristics or have high artistic value.
- ◆ And finally, it may yield important information in history or prehistory.

This site represented people who apparently abandoned it long ago. No living person remembered it in fact or myth. And because it is a prehistoric site, the first three criteria do not seem to apply.

However, archaeologists are concerned with a number of questions about the prehistory of the California coast. For example, what is the chronology and cultural history of the area? What were the settlement patterns of ancient people in the area and how did they support themselves? How did they procure the right kind of stone and then fashion it into tools?

In their report on the State Highway 1 slide project, Ramos and Fitzgerald concluded that data from the site was important for understanding the prehistoric chronology for the area. It has "the potential to add insight into the relationship of lithic (stone) technology to settlement patterns and scheduled subsistence behavior in past hunter-gatherer societies."

Citing the final criterion, the authors noted that "the Pescadero Creek Site still has potential to address important research questions regarding the prehistory of the central California coast, an area with surprisingly little archaeological data. Therefore, we recommend that the site be considered eligible for inclusion on the National Register of Historic Places."



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*Erosion threatened Highway 1 during the winter of 2002 (above), which obliged Caltrans archaeologists (above right) to initiate a survey of the area. PHOTOS BY BRIAN A. RAMOS, PH.D.*

## Background

Native Americans have been associated with the region around SM-367 since long before the earliest days of European contact. Sixteenth-century explorer Juan Rodriguez Cabrillo is considered to be the first European to visit Monterey Bay. And Captain Gaspar de Portola unknowingly led his 64-man expedition past Monterey Bay on October 23, 1769, before going on to discover San Francisco Bay. Along the way, he observed Native Americans at Pescadero Creek.

Archaeological excavations in the San Francisco Bay region go back to the late days of the 19th century when amateur and professional archaeologists became interested in prehistoric shell mounds scattered around the area, and digs have continued to the present.

In the case of SMA-367, Ramos and Fitzgerald in cooperation with Mark Hylkema, a California State Parks archaeologist, went through a three-step process to determine the site's value.

In April 12, 2002, they began Phase I by conducting a formal pedestrian survey of the site's surface and by limited shovel probes. They found a few Monterey chert flakes, but little else. Caltrans Headquarters archaeologists Glenn Gmoser, Darrell Cardiff and Bill Silva assisted them in the project. Even then, the team found few artifacts.

Phase II began with excavation of a series of 1-by-2 meter pits, with their contents passed through a 1/4-inch mesh. Any cultural materials were collected and their locations noted. These "control units" were then filled in and their surfaces returned as much as possible to their original appearance.

In Phase III, archaeologists conducted data recovery by excavating 10 control units at



successive depths of 10 centimeters and screened the soil through 1/4-inch mesh. All recovered cultural materials and soil samples were taken to the laboratory for cleaning and analysis.

Stone artifacts included simple tools: bifaces (two-sided implements), simple flakes, cores (amorphous stones that showed evidence of flakes having been removed), cobbles and unmodified flakes known as "debitage."

Analysis of animal bones found on the site actually indicates little about the occupants' diet. The excavation found the remains of rodents such as squirrels, chipmunks, gophers and mice, and a few larger mammals ranging from jackrabbits to carnivores such as bobcats, foxes and mountain lions. However, it is more likely that these specimens are modern intrusions into the site.

## The Bottom Line

Although Pescadero is Spanish for "fisherman," the excavation found little evidence of marine-based food items. In fact, it is this lack of evidence of marine-based food items that the archaeologists found most compelling. Archaeological sites along the coast generally exhibit large quantities of shellfish remains in sites called shell middens or shell mounds.

This pattern generally emerged roughly 1,500 years ago along the central California coast although some older sites have been identified near Santa Cruz and at Elkhorn Slough near Monterey. The site near Pescadero is apparently a rare coastal example of an area never used for marine resources — as would be expected. It appears that these early inhabitants accessed the coast around 3,000 years ago as part of a larger free-ranging settlement pattern.



PEOPLE LIKE ARCHAEOLOGY.

BUT WHY SHOULD

CALTRANS UNEARTH

EVIDENCE FROM THE PAST?

The economy of the period — at least for the people who chose to exploit this location — was “not oriented strictly to marine habitats... foothill and mountain zones were routinely accessed from coast encampments,” the authors wrote.

In fact, “eastern California obsidians (occurring) at coastal sites like SMA-367... implies the existence of social and economic ties to the Central Valley, this being consistent with relatively mobile, long distance settlement strategies.”

In other words, they moved around, exploiting the resources of different regions at various times of the year.

These highly mobile groups of Native Americans occasionally returned to the coastal site to what, for lack of a better modern description, was a kind of factory. Simply put, they were more concerned with making tools at the site than with exploiting the marine food sources that must have been available.

“Considering all available data,” wrote Ramos and Fitzgerald, “there seems little doubt that the Pescadero Creek site functioned as a stoneworking camp where lithics of distant origin and a variety of local rocks were subjected to a range of reductive processes.”

These stone tools were likely used for procuring terrestrial resources such as small- and medium-sized game animals that may have also frequented the many freshwater marshes and tributaries that touch the coast. However, in spite of the apparent abundance, the marine resources in the area did not become a major part of the hunter-gatherers’ diets until a much later time.

### Conclusion

In the end, the archaeological excavation along San Mateo County’s coastline served two important purposes.

In a state that is growing by half a million people a year, Caltrans is obligated to keep the transportation system moving efficiently and safely for a growing number of motorists across the state.

When nature’s excesses intervene, damaging or closing important roadways, Caltrans must step in quickly to ensure that highways continue to transport travelers, goods and services as quickly as possible. In this case, Caltrans was able to finish the important safety project on time.

At the same time, Caltrans archaeologists were able to provide another important service by salvaging an important part of the area’s rich cultural history before it otherwise might have been lost forever. •



# When Earthquakes Do Their Worst

**The Department Uses Technology to  
Locate and Assess the Damage**

*By Loren L. Turner, P.E.*

*Senior Transportation Engineer  
Caltrans GeoResearch Group*





Anyone who lived through California's Sylmar, Northridge or Loma Prieta earthquakes can recall the images of jutting bridges soaring to nowhere and double-decked freeways flattened like a collapsed layer cake. Those failed structures offered stark testimony to the power of an angry, shaking earth.

Fortunately, such destruction is rare on the State Highway System. More importantly, the California Department of Transportation's cutting-edge seismic program is continuously working to design bridges, highways and other transportation structures that are resistant to all but the most catastrophic earthquakes.

Still, any earthquake threatens at least some damage. That's why the Caltrans GeoResearch Group is using Geographic Information Systems (GIS) technology to aid in the Department's response to earthquakes.

Feeding into the GIS is ShakeMap, which is a graphic depiction of how intensely an earthquake has shaken in the vicinity of a bridge or other transportation structure. ShakeMaps, available on the Web within 10 minutes of a seismic event, coupled with Caltrans' GIS, will assist response managers to focus their field inspection resources on the most severely shaken areas around the state.

### Why Caltrans Pursued This Research

Following a major earthquake, one of the Department's most critical tasks is to assess the condition of all bridges and roadway corridors in the State Highway System. Timely response is important to ensure public safety, guide emergency vehicle traffic, and re-establish critical lifeline routes.

The primary method to assess damage is for trained maintenance and structures personnel to complete a

thorough site inspection. However, inspectors in the past had difficulties setting priorities because they lacked precise information about where the worst shaking — and, most likely, the greatest damage — had taken place.

Absent such data, they were forced to locate the quake's epicenter (available from the REDI/CUBE system immediately after the earthquake), find the closest fault, and develop a list of bridges within a specified buffer zone surrounding that fault or the epicenter. Maintenance crews were then dispersed widely within that region to perform initial reconnaissance.

That can take precious time. Moreover, shaking levels can vary dramatically within the buffer zone. An earthquake rarely ruptures over a fault's entire length. Furthermore, ground shaking at the same distance from a rupture zone varies by nearly tenfold due to a variety of seismological and geotechnical effects. Buffer zones large enough to account for all areas that could be shaken strongly will also include wide swaths of undamaged zones, which can lead to misdirected resources.





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*Californians understand the earth-shaking power of Mother Earth. Caltrans has developed a high-tech system for determining where tremors occur and how much damage they may cause on the State Highway System. The technique allows Caltrans to respond more quickly to disaster and to ensure public safety. PHOTOS BY CALTRANS HEADQUARTERS PHOTOGRAPHY*

In recent years, new technologies to process field earthquake recordings have evolved rapidly. Back in 1997 TriNet, a partnership between the California Institute of Technology, the U. S. Geological Survey, and the California Geological Survey, pioneered the ShakeMap technology that shows the intensity of ground shaking based upon measurements from instrumented sites.

These maps are now available (within five to 10 minutes following an earthquake) throughout the state via the California Integrated Seismic Network (CISN) on the Web and in a GIS format.

The illustration for the Northridge quake, for example, consists of a color-contour base map. It shows ground shaking based on a buffer zone surrounding an epicenter in blue concentric circles as compared to ground shaking, which is shown as red and green contoured areas.

It clearly illustrates greater shaking intensity in the north than the south, as well as relatively isolated "hot spots" near Santa Monica and Culver City. Had it been available at the time, ShakeMap could have focused inspection resources near the epicenter. It also would have pointed northward toward Newhall and to isolated southern areas near the Interstate 10 collapses at La Cienega and Fairfax avenues.

### What Caltrans Did

The GeoResearch Group is responsible for recognizing that ShakeMaps and other GIS data and technologies already in place could set priorities for responding to earthquakes. Using the Department's bridge inventory, which is already in a GIS format, we pursued an approach to combine the two data sets to deliver a more useful combined map.

A preliminary rating scale was devised to categorize bridges based upon when they were built. This allowed us to translate roughly a bridge's susceptibility to damage from ground shaking. This proposed rating scale, combined with ShakeMap shaking intensity, was used to create a map of the impacted zone.

This map employs red regions to denote "severe damage possible (all bridges)," while yellow regions indicate "severe damage possible (all bridges constructed before 1975)." Green regions correspond to "some damage possible," and, finally, clear regions indicate "damage unlikely." Generally, these zones correspond reasonably well with observed bridge damage.





A simple GIS routine was also developed that allows the map and bridge data to be analyzed and quickly converted into a priority list. It lists bridges within the affected region sorted by damage potential, route, and post mile to aid in dispatching inspection personnel. Other parameters on the list include geodetic coordinates and shaking intensity at that location.

The GIS tool developed for this application is now fully functional and is currently being tested. To date, we have received positive feedback on this tool. Additional functions have been requested including enhanced automation, internet dissemination, electronic field data collection and exchange for reconnaissance. The CISN has also expressed strong interest in pursuing more advanced applications of ShakeMap within Caltrans and more robust delivery mechanisms.

#### **The Researchers Recommend**

More practical research is needed to refine the preliminary bridge rating scale and thereby yield a more accurate and focused inspection priority scheme. Further functional enhancements to the tool are also needed. This will make the tool easier to use with less GIS training, and more readily accessible through the Internet and wireless technologies.



*ShakeMaps, available on the Web within 10 minutes of a seismic event, coupled with Caltrans' GIS, will assist response managers to focus their field inspection resources on the most severely shaken areas around the state.*

However, this simple GIS tool already takes a more rigorous approach than past methods to identify potentially earthquake-damaged bridges. The tool generates more detailed information and is faster than previous procedures, and the GeoResearch Group strongly recommends using the ShakeMap-based approach. •



# California Is Slowing for the **Cone Zone** — and Saving Lives

By *Tamie McGowen*

*Caltrans "Slow for the Cone Zone" Project Director*

## ***Are you helping to save lives by slowing for cone zones?***

Yes, according to California Highway Patrol statistics, it is likely that you are. Data analyses show that if California had kept pace with the rest of the nation in highway work zone deaths, 101 more motorists and employees would have died on California highways from 1999 to 2002.

In fact, California stayed ahead of the curve in protecting highway workers. This is an example of California leading the way with its innovative "Slow for the Cone Zone" highway safety campaign.

Since 1924, when the collection of statistics began, 161 Caltrans workers have been killed in the line of duty.

The California Department of Transportation has received a new federal grant in the amount of \$3.6 million over two years to expand the successful campaign to an even broader audience statewide.

The Department is providing an additional \$2 million to supplement this important endeavor. The new campaign kicked off this year.

In the meantime, Caltrans is making great strides internally with innovative ways of doing business in support of the campaign. For example, all Caltrans Districts are including the "Slow for the Cone Zone" message, where possible, in highway information advertisements, notices and messages placed with local newspapers and television stations.

They are also including the message in all communication relayed through the California Highway Information Network (CHIN) and the Highway Advisory Radio (HAR) which travelers use regularly for highway updates.

Another exciting effort underway is to obtain the National Work Zone Memorial Wall for the annual Highway Worker Memorial event to be held this April in Sacramento's Capitol Park. This would be the first time that the National Wall has made an appearance in California. The Worker Memorial will also feature 161 cones shaped in a





STUDIES SHOW THAT IN AREAS WHERE  
THE "SLOW FOR THE CONE ZONE"  
CAMPAIGN HAS RUN, ACCIDENTS IN WORK  
ZONES INVOLVING MOTORISTS DROPPED  
BY AS MUCH AS 25 PERCENT.



60-foot-wide caution sign to represent each of the 161 Caltrans highway workers who have died on the job since 1924.

Caltrans is also considering four pilot studies, which will include new campaign slogan signs in work zones, along with vehicle speed feedback signs.

If you would like to explore partnering opportunities for this campaign, contact the author at (916) 653-5456. •

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*Safety is the top priority at Caltrans work sites. The annual Worker Memorial reminds employees that they can't be too careful along the road. It also reminds motorists to "Slow for the Cone Zone" and save lives. PHOTOS BY CALTRANS HEADQUARTERS PHOTOGRAPHY*





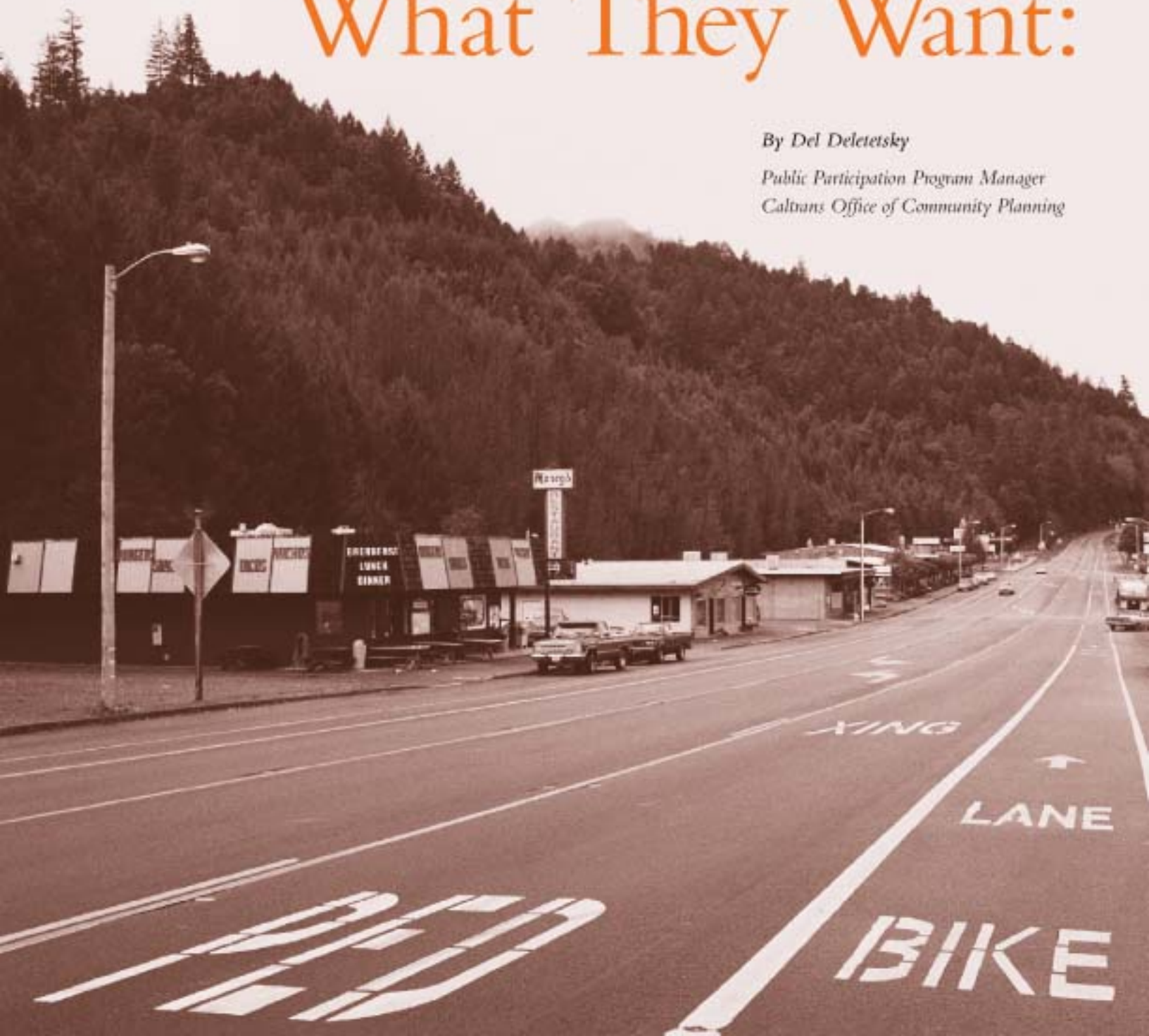


THE CONTEXT SENSITIVE APPROACH MAKES IT POSSIBLE FOR  
CALTRANS TO MAINTAIN ITS RESPONSIBILITIES FOR SAFE,  
INTERREGIONAL MOBILITY WHILE BEING RESPONSIVE  
TO NATURAL, CULTURAL AND BUILT ENVIRONMENTS

# Giving Communities What They Want:

*By Del Deletetsky*

*Public Participation Program Manager  
Caltrans Office of Community Planning*







*Willow Creek has benefited from "context sensitive solutions" on Highway 299 — with the addition of bicycle and turn lanes (photos on page 12). Other CSS improvements (photos on pages 13-15) give an overview of Caltrans' solutions for local communities across the state.*

# Context Sensitive Solutions

Two years ago, the California Department of Transportation was planning a standard pavement overlay project on the main street of Willow Creek, a small community astride Highway 299 about 35 miles from the coast.

Although the project was relatively small by Caltrans' standards, it was a very big deal by Willow Creek's reckoning. In effect, the town's main street was about to be widened into what some considered a speed zone. When townspeople got wind of the plan, they balked and asked for another design that better fit their needs.

Rather than a four-lane passing zone through the Humboldt County community, citizens asked for — and got — a two-lane main street complete with bicycle lanes, attractive parking areas and a turn lane.

Instead of transportation business as usual, Caltrans worked with the town to produce a "context sensitive solution" (CSS). That's when things changed. In fact, the abrupt turnaround in plans was the first step in what city officials now consider a downtown renewal.

The context sensitive approach "makes it possible for Caltrans to maintain its responsibilities for safe, interregional mobility while being responsive to natural, cultural and built environments," wrote Marsha Mason, Senior Landscape Architect, Livable Communities, in the winter 2002 issue of the *California Department of Transportation Journal*.

Since then — after completion of numerous other context sensitive projects across the state — the world is taking notice.

In September, the American Association of State Highway and Transportation Officials (AASHTO)

honored Caltrans with its 2004 Best Practices in Smart Growth and Transportation Award during its annual conference in Philadelphia. District 5 Director Gregg Albright accepted the award on behalf of the entire Department.

This competition was cosponsored by AASHTO's Center for Environmental Excellence along with the Federal Highway Administration. Its expert panel reviewed 36 applications from 21 states around the country before awarding finalists in three categories.

The Department won the prestigious prize in the "Institutionalization or Organizational Change" category for its entry, "Context Sensitive Solutions: Changing the Culture."

The AASHTO judges saluted Caltrans for "connecting the dots" — of collaborating with stakeholders, balancing transportation needs and community values, and promoting seamless, interconnected multimodal systems. They saw the Department's initiative as integrating "smart growth" in planning and delivering transportation projects.





# CALTRANS WINS AWARD FOR ATTRACTIVE GATEWAYS AND STREETSCAPES, PEDESTRIAN AND BICYCLE FEATURES, AND TAMED TRAFFIC ON MAIN STREET

## History

The Department's transformation to a more responsive and community-friendly policy has its roots in the Intermodal Surface Transportation Efficiency Act of 1991, which provided states with design flexibility for roadways outside the National Highway System.

Soon afterward, the National Highway System Act of 1995 allowed Caltrans to consider environmental, scenic, aesthetic, historic, community and preservation aspects when building or upgrading non-interstate highways. Two years later, the Federal Highway Administration published "Flexibility in Highway Design," which allowed for new designs, particularly for highways running through communities.

These advances represented a growing public consensus. It was clear that communities wanted something different: attractive gateways and streetscapes, and pedestrian features, as well as safer and slower traffic in downtown areas.

## Changing the Culture

Context sensitive solutions serve as the linchpin to integrating smart growth principles. However, just as importantly, it is vital for transportation planners and policy makers to encourage public participation and to give careful consideration to their opinions in decision-making.

As citizens become more aware, communities want local transportation corridors to reflect their unique identities. That leads to partnerships with regions and localities.

With this backdrop arrayed, Caltrans initiated the Director's Policy on Context Sensitive Solutions in 2001. This and subsequent iterations have moved Caltrans along new avenues, institutionalizing CSS and smart growth practices in project delivery.

Other important directives include "Accommodating Non-Motorized Travel" and "Project Purpose and Need." Broad guidance is also provided in the Department's cross-functional "CSS Implementation Plan," as well as the CSS strategies identified in the draft "California Transportation Plan for 2025."

In addition, "Main Streets: Flexibility in Design and Operations" identifies key CSS and smart growth design opportunities for communities to consider, and guides them toward forging transportation partnerships.

Of course, the ultimate test of the policy is how well the Department integrates these concepts into project delivery. For example, does the policy balance transportation needs and community values? Are more projects built on time and at cost? Are projects delivered in collaboration with partners? And do they include good design features?

To keep the CSS process on the right path, the Department has instituted a broad range of efforts, such as working groups, funding, training and outreach. The founding CSS Steering Committee provided the initial, overall guidance for CSS, while the Alternative Transportation and Livable Communities (ATLC) Committee has fostered dialogue with non-profit advocacy groups focusing on smart growth, healthy communities and CSS.

Several groups are focusing on non-motorized issues: the California Bicycle Advisory Committee (CBAC), the Pedestrian Safety Task Force (PSTF), and the Non-Motorized Travel Team (NMTT).







The Department also provides funds for local community transportation projects and planning through several sources: \$7 million annually from the Bicycle Transportation Account (BTA); \$20-25 million annually through Safe Routes to School (SR2S) grants; and up to \$3 million a year from each of the Community Based Transportation Planning (CBTP) and Environmental Justice (EJ) grant programs.

The Department has, or will, put into place CSS training for employees in the areas of planning, operations and design, which is intended to ensure that the Director's Policy on CSS is institutionalized into Caltrans' daily work. Nationally recognized bicycling and pedestrian experts are also working with Caltrans to develop a best practices technical report and curriculum for classroom and Web-based training.

A "Public Participation Guide" is aimed at encouraging citizen participation. In addition, a \$2.5 million Planning Public Participation Contract (PPPC) is intended to enhance outreach efforts statewide.

The Department has simultaneously weighed in on transit-oriented development (TOD), conducting extensive research to spur context sensitive

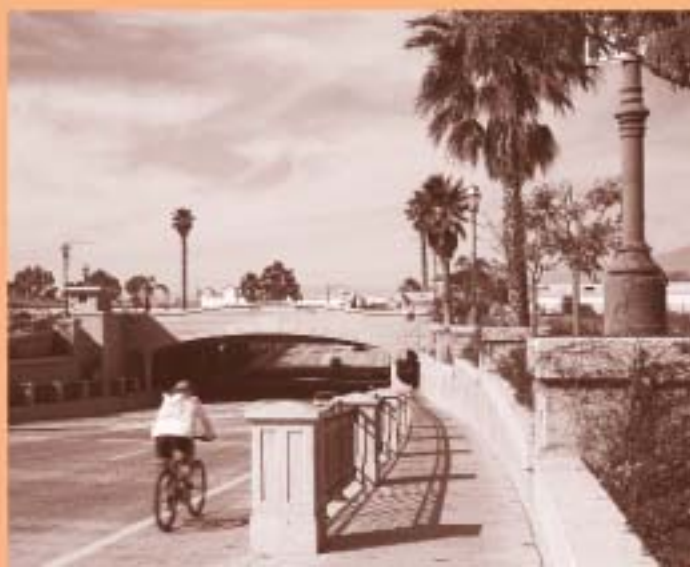
solutions for livable communities and increased ride sharing. Through "The Statewide Transit-Oriented Development Study: Factors for Success in California" (2002), the Department has promoted transit-oriented development and improved access to transit. The effort attempts to promote "24-hour places" that engage the public while increasing connections and safety for pedestrians, bicyclists and transit users.

### The Future

Some have suggested that "changing the culture" of transportation policy and planning could take between six and eight years. However, Caltrans is taking an even longer-term perspective.

The California Department of Transportation is wagering that through careful cultivation and nurturing, context sensitive solutions will take root in California's deep soil, leading to both a public appreciation and practice of CSS values for decades to come.

The ultimate fruit of this effort will be realized in a lasting public works tradition and a lengthy legacy of more livable communities. •







# Caltrans Moves Heaven and Earth

(and 16,650 cubic yards of concrete)

## in 'Rapid Rehab' of Interstate 15

*By Rose Melgoza, Chief, District 8 Public Affairs*

AFTER MAKING AN extensive outreach to the traveling public last autumn, Caltrans (District 8, San Bernardino) launched an accelerated schedule to replace aging concrete slabs on Interstate 15 in the Devore area between State Highway 210 and Interstate 215.



The construction work, which began October 3, 2004, generated significant public interest. The revised schedule called for the contractor to work continuously seven days a week, 24 hours a day, until the paving portion of the project was complete.

The \$15 million, 3.4-mile project was finished in early November after the application of 16,650 cubic yards of concrete, the equivalent of 1,665 dump truck loads. The District finished in one month what normally would have taken eight.

Some auxiliary work, such as guardrail and sign replacement, grinding and lane re-striping, continued at night until this year.

This Rapid Rehab approach balanced the traffic impact imposed on daily commuters and weekend

travelers, and it allowed the Department to complete vital work on the north-south freeway that connects major Southern California urban areas with High Desert communities and Las Vegas.

The innovative approach was necessary because of the heavy traffic volume on I-15. More than 80,000 vehicles a day travel between the High Desert and destinations in San Bernardino, Los Angeles and Orange counties.

"It's ironic that at the same time we have a transportation funding crisis, we also have the largest highway construction program ever in the Inland Empire," said District Director Anne Mayer.

"Our guiding philosophy was simple: get in, get out, and stay out," Mayer said.

District officials noted that traffic congestion has increased as the Inland Empire's population and economy have grown. As a result, District 8 has had to find innovative ways to complete needed work while minimizing traffic impacts.





Pavement reconstruction on urban freeways is one of Caltrans' greatest challenges. The Rapid Rehab project used around-the-clock construction techniques that by their very nature were expected to have a greater effect on traffic than more conventional methods — but for a much shorter duration.

Traditional construction models, which call for night work when traffic is normally at its lightest, significantly lengthen the time required to complete a project. It can also cost more, be more dangerous for workers and result in a shorter usable pavement life.

District 8 had originally scheduled six weeks of weekday closures — Sunday night through Friday morning during lowest volume periods. However, commuters in the High Desert area questioned the proposal and asked Caltrans to shift or share the burden with weekend travelers.

The new plan called for working through the weekends and compressing the original six-week schedule to four. The extended closure was scheduled to conclude by the end of October with final completion set for early this year.

This is how it worked: three southbound lanes were available to morning commuters between 4 and 9 a.m. during most of the construction — allowing them to get to work on time. Even then, some delays were expected, so the District recommended that commuters try to schedule their travel during off-peak hours.



.....  
*Caltrans District 8 faced a tough problem: How could the District replace old concrete on Interstate 15 without unduly affecting traffic on the vital thoroughfare? The answer was to employ the "Rapid Rehab" process, which included an intense public information campaign along the \$15 million, 3.4-mile project. Despite daunting obstacles, the process worked to perfection.*

PHOTOS BY DISTRICT 8



At the same time, Caltrans had the flexibility to change construction staging on a daily basis and accommodate traffic conditions through use of a quick-change moveable barrier system. The system is similar to one used on the San Diego-Coronado Bridge.

The specialized equipment picked up the barrier and moved it to a different position on the pavement with little disruption to traffic. The barrier was moved twice a day to accommodate peak directional traffic.

The District also employed new radar sensing equipment that monitored traffic during the project. It posted "real time" traffic messages on changeable message signs displaying current travel time or expected delays. The signs also offered practical alternative routes.



*Our guiding philosophy was simple:  
get in, get out, and stay out.*



District 8 provided information about detours in the weekly "Fast Fax Bulletin." A public awareness campaign informed travelers that discretionary trips during peak commute hours would increase traffic congestion and cause delays. Las Vegas bound travelers were encouraged to use alternate routes or other modes of transportation.

By diverting 20 percent of travelers during peak commute hours, the District avoided lengthy delays. Caltrans remained committed to keeping at least two lanes open to peak directional traffic.

This innovative plan substantially reduced delays through the construction site while retaining the benefits of the original project. The Rapid Rehab project:

- ◆ Reduced inconvenience to motorists through a compressed schedule, completing construction in one month instead of eight.
- ◆ Increased pavement life up to 30 years or more — twice as long as conventional concrete.
- ◆ Improved safety and reduced exposure of workers to traffic.
- ◆ Reduced construction costs by 25 percent, saving an estimated \$6 million.



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*Faced with a need to keep traffic flowing, District 8 adopted the philosophy of "get in, get out, and stay out." The District diverted as many as one in five travelers during peak commute times, and completed a repaving job that should last 30 years or more.*

PHOTOS BY DISTRICT 8

The Department partnered with the Victor Valley Transit Authority to provide increased commuter bus service — free to commuters during construction. County agencies and Caltrans also promoted rideshare information at 1-800-COMMUTE.

The Caltrans project Web site posted updated information and photographs regularly at [www.dot.ca.gov/dist8](http://www.dot.ca.gov/dist8). Local agencies and other Caltrans Districts established Web site links with District 8 to provide immediate updated information to the public throughout Southern California. A weekly electronic bulletin was distributed to the public with upcoming lane closures, trucker advisories and safety messages that included "Slow for the Cone Zone" messages.

A project of this magnitude requires a large-scale cooperative effort. Caltrans wishes to acknowledge the efforts and support of commuters, local agencies and civic organizations within the region. Their cooperation as well as around-the-clock construction techniques and an extensive public outreach campaign made the Rapid Rehab Project a success.

Look for more Rapid Rehab projects in the future. •



# **SLOW FOR THE** **CONE ZONE<sup>SM</sup>**

C A L T R A N S

*This publication is dedicated to all highway  
workers, including those who have lost their lives  
while improving California's highway system.*



**SAVE LIVES AND  
SLOW FOR THE CONE ZONE**



MS 49  
Caltrans Public Affairs Office  
1120 N St, Rm 1200  
Sacramento, CA 95814

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